


# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference SMC 60577/WO		<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/416
International application No. PCT/GB2004/001088		International filing date (day/month/year) 15.03.2004	Priority date (day/month/year) 02.04.2003	
International Patent Classification (IPC) or national classification and IPC C09B45/48, C09D11/00				
Applicant AVECIA LIMITED				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand  30.08.2004		Date of completion of this report  14.03.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer  Ketterer, M  Telephone No. +31 70 340-3645		



# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

1020 Rec'd PCT/PTO 22 SEP 2005  
International application No.  
PCT/GB2004/001088

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
    - ☐ international search (under Rules 12.3 and 23.1(b))
    - ☐ publication of the international application (under Rule 12.4)
    - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

### Description, Pages

1-19 as originally filed

### Claims, Numbers

1-13 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
    - ☐ the description, pages
    - ☐ the claims, Nos.
    - ☐ the drawings, sheets/figs
    - ☐ the sequence listing *(specify):*
    - ☐ any table(s) related to sequence listing *(specify):*
  4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
    - ☐ the description, pages
    - ☐ the claims, Nos.
    - ☐ the drawings, sheets/figs
    - ☐ the sequence listing *(specify):*
    - ☐ any table(s) related to sequence listing *(specify):*

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/GB2004/001088

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	1-13
	No: Claims	
Inventive step (IS)	Yes: Claims	1-13
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-13
	No: Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/GB2004/001088

**Re Item V.**

V.1. The following documents are referred to in this communication:

- D1 : CHEMICAL ABSTRACTS, vol. 61, no. 7141, 14 September 1964 (1964-09-14), Columbus, Ohio, US; abstract no.: 7141d, H.  
IIDA ET. AL.: "Metal Complex Dyes I. Copper complexes of azo dyes prepared by using 8-aminoquinoline as a diazo component" page 1964 column 1 XP002284432
- D2: WO -A- 2004/007622 (intermediate document)
- D3: EP -A- 1 241 232
- D4: EP -A- 1 270 676
- D5: EP -A- 0 902 064

V.2. The subject matter of claims 1-13 seem to be novel and inventive.

V.2.1.

Document D1 discloses (see abstract, formula (V)) a copper complex with a mono azodye, whereby two quinoline moieties are connected in 8-position via the azo bridge. The difference to the dyes of current claim 1 is the missing N-atom in ortho position to the azo bridge. Claim 1 is therefore novel over D1. Referring to the authors of D1, the dyes have better properties to dye polyacrylonitrile instead of wool. Ink jet ink technique is not mentioned in D1.

The problem underlying the current application is to 'provide new magenta inks which meet the current demanding technical requirements of ink jet printing'. The dyes of claim 1 resp. the inks of claim 10 solve this problem.

A skilled person, who is looking for a solution for this problem would not, by considering D1, come to the quinoline mono azo dye complexes of current claim 1 to prepare ink jet inks, because: a) ink jet ink properties of D1 dyes are not mentioned; b) a hint in D1 is missing to prepare an intermediate of an N-heterocyclic diazonium compound with the N-atom in ortho-position, which subsequently leads to the final chelat dye after coupling with a quinoline-5-amino compound. Claims 1, 8, 11, 12 and 13 are regarded being novel and inventive over D1, as well as the dependend claims 2-7 and 10.

V.2.2.

D2 (intern. Application in japanese language) discloses azo dyes bearing quinoline rings attached in 3-position to the azo group (page 16); the central metal is coordinated here by a hydroxyl group in o-position. The D2-dyes are also used for ink jet recording. As the linking position for the azo group at the quinoline moiety seems to be critical for the claimed dyes, and because the linking position in D2-dyes is generally different, D2

is not regarded being relevant against inventive step of the subject matter for claim 1. Furthermore, the examples of the current application show quinoline moieties not bearing OH groups capable of chelating a metal atom/cation [As at the current stage no priority document is available, D2 still must be taken into consideration by evaluating novelty resp. inventivity].

V.2.3.

D3/D4/D5 disclose monoazo chelat metal dyes with heterocyclic moieties bearing N-atoms in the ortho-position to the azo bridge (e.g. triazol, pyridine etc.), but generally only naphthyl is mention as the other chromophor ring; hints are missing for taking quinoline instead of naphthaline. Although the dyes of D3/D4/D5 are used for the same purpose as the claimed dyes, they are not relevant against inventive step for current claim 1 because of the missing hint to the quinoline moiety.